Algebra Examinations of Governorates 2012

Cairo 1 Mathematics department - Ahmed Lotfy (E.LS)

1 Complete each of the following:

a) The solution set of the inequality - x > 3 in R is ..... .

b) $\sqrt[3]{125} - \sqrt[3]{24}$ = ...

c) The slope of the straight line parallel to x - axis is ..... .

d) The additive inverse for $(1 - \sqrt{2})$ is .....

e) $\sqrt[3]{-64} + \sqrt{16}$ = ...

2 Choose the correct answer:

a) If $x = 2 + \sqrt{5}$, y is the conjugate number for x then $(x - y)^2$ = ... ($2\sqrt{8}$ or 20 or $4\sqrt{5}$ or 10).

b) $(\sqrt{8} + \sqrt{2})^2$ = ……. ($\sqrt{10}$ or 10 or 18 or $\sqrt{18}$).

c) $2 \in$ ($|2, 5|$ or $]2, 5[$ or $\{1, 5\}$ or $]1, 5[$).

d) The radius length of a right circular cylinder whose volume is $40\ \pi$ cm^3 and height 10 cm = ... cm. (5 . 3 , 2 , 1)

e) The irrational number lies between 2 and 3 is ..... . ($\sqrt{10}$ or $\sqrt{7}$ or 2.5 or $\sqrt{3}$)

3 (a) Find the solution set of the inequality: $1 \leq 2x + 3 < 5$ in R and represent it on the number line.

(b) Put in the simplest form: $\frac{1}{4}\sqrt{80} - \sqrt{20} - \sqrt{25} + \sqrt{125}$

4 (a) Find the slope of the straight line that passes by the ordered pairs (0, –3) , (2, 1)

(b) Find the total area of a cuboid whose volume is 750 cm and its height 5 cm. with a squared shape base.

5 The following table represent the daily wages by L.E for 30 workers. Find the arithmetic mean of that distribution:

Set.	4 –	8 -	12 -	16 -	Total
Frequency	3	5	14	8	30

Cairo 2 El Khalifa & Mokattam Educational Zone Futures Languages Schools

Answer the following questions:

1 Choose the correct answer:

1. $Q \cup Q' =$ ……. a) $\varnothing$ b) R c) Q d) {O}

2) $\sqrt[3]{64} + \sqrt{16}$ = ...

a) zero b) 8 c) –8 d) ± 8

3) [–2 , 5] ∪] 4 , 6] = ...

a) [–2 , 6] b)] –2 , 6] c) [–2 , 6 [d)] –2 , 6 [

4. If (a , 2a) satisfied the equation: 2x + 3y = 24, then a = ...

a) 2 b) –3 c) –2 d) 3

5.The mean of the values 4 , 7, 12, 13, 8, 10 is .....

a) 6 b) 8 c) 9 d) 12

❷ Complete each of the following:

1. [4 , 7] ~ { 4, 7 } = ...
2. 4 cm, 7 cm and 5 cm are dimensions of cuboid, then its volume = ...
3. The S.S of the equation : $x^3 + 9 = 1$ in R is ..... .
4. If the lower limit of a set is 10 and the upper limit of the same set is 20, then its center = ...
5. If the ordered pair (-1 , 1) satisfies the relation – x + by = 16, then b = ...

❸ (a) If $x = 2\sqrt{2} - \sqrt{3}$ $y = \frac{5}{2\sqrt{2} - \sqrt{3}}$, **find** the value of the expression: $(x + y)^2$

(b) Find in R the S.S of : $8x - 17 \geq 6x + 11$

❹ (a) By using the number line: If x = [– 7 , 3] , y = [– 3 , ∞ [

Then Find: 1) x ∩ y 2) x – y

(b) Find the slope of the straight line $\overleftrightarrow{AB}$ where A(–1 , 3) , B(2 , 5). Is the point (8, 1) ∈ $\overleftrightarrow{AB}$?

❺ (a) The following table shows the frequency distribution of marks of 40 students in math:

Sets	5 –	15–	25–	35–	45–	Total
Frequency	7	9	12	8	4	40

Find the mean of this distribution.

b) Find the length of the radius, of the right circular cylinder if its volume 64 π cm^3 and its height 4 cm. Represent these data by broken line.

Cairo 3 Abdeen Educational Zone - Mohamed Fared E.L.S

Answer the following questions:

❷ Complete each of the following:

a) The conjugate number of the number $\sqrt{7} - 2$ = ...

b) The median of a set 3, 7, 9, 5 and 4 is ..... .

c) The S.S of the inequality: – x > 3 in R is ..... as interval.

d) [3٫7] – {3,7} = ...

e) If the straight line represents x–y = 2 cuts x – axis ,then x = ...

2 Choose the correct answer:

1) The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is .....

(a) $\sqrt{3}$ b) $2\sqrt{3}$ c) $3\sqrt{3}$ d) $3\sqrt{6}$

2) $\sqrt{3}$ ..... [1, 2]

(a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

3) The S.S of the equation : $x^2 + 25 = 0$ in R is .....

(a) 5 b) ± 5 c) ϕ d) –5

4) $\sqrt{2} + \sqrt{8}$ = ……

(a) $\sqrt{10}$ b) 4 c) $4\sqrt{2}$ d) $3\sqrt{2}$

5. The mode of values 2, 5, 8, 2, 3 is .....

(a) 4 b) 2 c) 3 d) 8

3 a) Simplify to the simplest form: $\sqrt[3]{16} - \sqrt[3]{54} - \sqrt[3]{128}$

(b) Find the value of k where (k, 2k) satisfies the , relation x + y = 15

4 a) Find the S.S in R of the following inequality:

$-1 \leq 2 \times +3 < 5$, then represent the S.S. on the number line.

(b) Find the lateral area for a right cylinder of volume

9 2 4 cm^3. and of a height 6 cm ($\pi = \frac{22}{7}$)

5 In the following table find the mean of marks of 50 students in an examination:

Sets	2–	6–	10–	14–	18–	22–	26–	Total
Frequency	3	6	8	10	11	8	4	50

Cairo 4 El-Zeitoun Directorate - Language School

1 Answer the following questions:

1. The volume of the sphere = ...
2. $\sqrt{64} - \sqrt[3]{64}$ = ...
3. The S.S in R for the equation: $x^2 + 4 = 0$ is ..... .
4.]–2, 1 [∩ [–2, 1] = ...
5. $(\sqrt{3} - \sqrt{2})^2 + 2\sqrt{6}$ = ...

2 Choose the correct answer from the given ones:

1. The multiplicative inverse of $\sqrt{\frac{3}{6}}$ is .....

a) $\sqrt{3}$ b) $2\sqrt{3}$ c) $3\sqrt{3}$ d) $3\sqrt{6}$

2) If the ordered pair (–1 , 3) satisfies the relation 3x –y = C, then C = …….

a) 7 b) –7 c) 6 d) –6

3) The S.S. in R for the equation $x^3 = -8$ is {.....}

a) 2 b) 4 c) –2 d) –4

4. The cube whose volume is 8 cm^3, the area of one of its faces = ……. cm^2

a) 4 b) 8 c) 16 d) 64

5. If The mode of the values: 4, a, 5, 3 is 3, then a = …….

a) 4 b) 3 c) 5 d) 6

3 (a) Find the value of k such that $\overleftrightarrow{AB}$ is parallel to y –axis where A(6, 2) B (–2k, 4)

(b) If A = $]-\infty, 3[$, B = $[-1, 5]$

Find the following using the number line. (1) $A \cap B$ (2) $A \cup B$

4 (a) **Simplify to the simplest form:**

$\sqrt{50} - \sqrt{18} - \sqrt{2}$

(b) $-7 \leq 4x - 3 < 5$, then represent it on the number line.

5 The following is the frequency distribution of the weekly extra wages of 100 workers in a factory:

Extra wages	30-	40-	50-	60-	70-	80-	Total
No. of workers	10	K	20	28	20	8	100

(1) Find the value of k.

(2) Find the mean of this distribution.

Cairo 5 Rod El-Farag directory - Fatma El -Zahraa Experimental language School

Answer the following questions:

1 Choose the correct answer from between brackets:

1. $\sqrt{12} - \sqrt{3}$ = ... (3 or $\sqrt{3}$ or $2\sqrt{3}$ or $\sqrt[3]{3}$)
2. $[-2, 3] - \{-2, 3\}$ = ... ($[-2, 3[$ or $]-2, 3]$ or $[-1, 2]$ or $]-2, 3[$)
3. The ordered pair (3, 1) satisfies the relation .....
   (x – y = 6 , 3 x + y = 6 , x– 3 y = 6 , x+ 3y = 6)
4. The volume of the sphere whose diameter length is 6 cm = ... cm^3
   (9 π or 2 π or 36 π or 288 π)
5. The multiplicative inverse of the number $\frac{\sqrt{3}}{2}$ is .....
   ($\frac{3}{2}\sqrt{2}$ or $\frac{3}{2}\sqrt{2}$ or $\frac{\sqrt{6}}{3}$ or $-\sqrt{\frac{3}{2}}$)

❷ Complete the following:

1. If $\sqrt[3]{x} = 3$, then x = ...
2. The S.S of the inequality $-3x + 2 \geq 11$ is .....
3. The cube hose lateral area is 36 m^2, its volume = ...
4. If $x < \sqrt{15} < x + 1$, $x \in Z$, then x = ...
5. If (k, 2k) satisfied the equation 2x + 3y = 24, then k = ...

❸ (a) If the straight line that represents the relation $y - x = a$ cuts y – axis at (k, 3). Find the value of a.

(b) Find the S.S of $(2x - 1)^3 - 10 = 54$

❹ (a) If $x = 2\sqrt{2} - \sqrt{3}$ and $y = \frac{5}{2\sqrt{2} - \sqrt{3}}$, then calculate $\frac{x + y}{x y}$

(b) Simplify: $\sqrt[3]{54} - 2\sqrt[3]{\frac{1}{4}} - \sqrt[3]{16}$

❺ From the following frequency table.

Sets	10-	20-	30-	40-	X-	60-	Total
Frequency	12	15	25	27	K + 4	4	100

Find 1) the values of both X and K.

2) The arithmetic mean of this distribution.

Cairo 6 El Nozha Educational Zone, El Sayeda Khadiga Language School

❶ Complete:

1) The multiplicative inverse of the number $\frac{\sqrt{2}}{12}$ is = ...
2. $[0, 2] \cup [1, 5[$ = ...
3. If $x = \sqrt{3} + \sqrt{2}$, then x^{-1} = ...
4. The arithmetic means of 3, 2, 7, 9, 9 is .....
5. The mode of 8, 2, 1, 8, 1, 8 is = ...

❷ Choose the correct answer:

1. If the volume of a sphere is $\frac{32}{3}\pi$ cm^3 ,, then its radius length = ... cm
   {1, 2, 4, 16}
2. $\sqrt[3]{2} + \sqrt[3]{2}$ = ... $\{\sqrt[3]{3}, \sqrt[3]{4}, \sqrt[3]{8}, \sqrt[3]{16}\}$
3. If A, B and C are collinear, then the slope of $\overleftrightarrow{BC}$ = ...
4. The median of 9, 6, 8, 7, 2 is ..... { 6 , 7 , 8, 9 }
5. The irrational number between 2, 3 is ..... . $\{\sqrt{10}, \sqrt{7}, \sqrt{15}, \sqrt{3}\}$

3 a) Put in the simplest form: $\sqrt{48} - 2\sqrt{27} - 6\sqrt{\frac{1}{3}}$

b) Find the lateral area of a right circular cylinder whose diameter length is 4 cm and its height = 10 cm

4 a) Find the S.S of equations:

(i) $2-\sqrt{6}\ x = 8$ (ii) $(x + 2)^3 = -8$

(b) Find the S.S of inequality: $1 \leq 1 - 2x < |-7|$

5 a) Find the slope of the straight line $\overleftrightarrow{AB}$ where A(5, 0) , (0, 2).

(b) The following table shows the frequency of marks of 50 student:

Sets	2-	6-	10-	14-	18-	22-	26-	Total
Freq.	3	6	8	10	11	8	4	50

Find the Arithmetic mean of the marks of the students.

Cairo 7 — Rod El Farag Educational Directorate — Ahd Gedid Language School

1 Choose the correct answer:

1. $\sqrt{12} - \sqrt{3}$ = ...

(a) 3 b) $\sqrt{3}$ c) $2\sqrt{3}$ d) $3\sqrt{3}$

2. $]-1, 2[- [1, 4] =$ ……. .

(a) $]-1, 1[$ b) $\{-1, 1\}$ c) $]-1, 1]$ d) $[-1, 1]$

3. The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is .....

(a) $-\frac{\sqrt{3}}{6}$ b) $6\sqrt{3}$ c) $2\sqrt{3}$ d) $-2\sqrt{3}$

4. The median of a set of the values 3, 7, 2, 9, 5 is .....

(a) 6 b) 5 c) 7 d) 3

5. The mean of 5, 6, 2, 7 is .....

(a) 4 b) 5 c) 7 d) 6

2 Complete:

a) The ordered pairs that satisfy the relation $2x - 3y = 6$ are (0, ...) , (....., 0)

b) $[3, 5] - \{3, 5\}$ = ...

c) The S.S of $x^2 + 4 = o$ is .....

d) $\sqrt[3]{64} - \sqrt{16}$ = ...

e) The conjugate of $2 - \sqrt{5}$ is .....

3 (a) Simplify : $\sqrt{32} - \sqrt{72} - 6\sqrt{\frac{1}{2}}$

(b) Find the volume of cylinder with base raduis 7 cm and its height 10 cm $\pi = \frac{22}{7}$

4 a) If $x = \sqrt{5} + 2$, $Y = \sqrt{5} - 2$. Find the value of $(x + y)^2$.

b) Represent the following relation graphically $x - y = 1$

5 a) Find the S.S of inequality of $-1 < x + 3 \leq 5$ interval

b) Find the mean of the following date.

Sets	10-	20-	30-	40-	50-	Total
Frequency	10	20	25	30	15	100

Cairo 8 El-Zeitoun Directorate - Language School

1 Answer the following questions:

1. The slope of the straight line is undefined when it is parallel to .....
2. $\sqrt{64} - \sqrt[3]{64}$ = ...
3. The S.S in R for the equation: $x^2 + 4 = 0$ is .....
4. $]-2, 1[\cap [-2, 1] =$ .....
5. $(\sqrt{3} - \sqrt{2})^2 + 2\sqrt{6}$ .....

2 Choose the correct answer from the given ones:

1. The multiplicative inverse of $\sqrt{\frac{3}{6}}$ is ……..…. .

(a) $\sqrt{3}$ b) $2\sqrt{3}$ c) $3\sqrt{3}$ d) $3\sqrt{6}$

2. The S.S in R of the inequality $-x < 0$ is .....

(a) $]-\infty, 0]$ b) $]-\infty, 0[$ c) $]0, \infty[$ d) $[0, \infty[$

3. The S.S in R for the equation $x^3 = -8$ is { .....}

(a) 2 b) 4 c) –2 d) –4

4. The cube whose volume is 8 cm^3, the area of one of it's faces = ... cm^2

(a) 4 b) 8 c)16 d) 64

5. If the mode of the values: 4, a, 5, 3, is 3, then a = ...

(a) 4 b) 3 c) 5 d) 6

3 (a) If $x = \sqrt{5} + \sqrt{3}$, $y = \frac{2}{\sqrt{5} + \sqrt{3}}$. Find the value of the expression: $(x - y)^2$

(b) If $A =]-\infty, 3[$, $B = [-1, 5]$. Find the following using the number line

(1) $A \cap B$ (2) $A \cup B$

4 (a) Find three ordered pairs satisfy the relation $6x = 1 - y$

(b) $-7 \leq 4x - 3 < 5$, then represent it on the number line.

5 The following is the frequency distribution of the weekly extra wages of 100 workers in a factory:

Extra wages	30-	40-	50-	60-	70-	80-	Total
No. of workers	10	k	20	28	20	8	100

1) Find the value of k.

2) Find the mean of this distribution.

Cairo 9 Al Salam Education Zone - Anwer Al Sadat Exp. Lang. School

Answer the following questions:

1 Choose the correct answer:

1. If $\frac{3}{a+2}$ is a rational number , then $a \neq$ ..... (3 , 5 , – 2, zero)
2. The mean of the values 7, 15, 19, 14 and 15 is ..... (14 , 15, 16, 17)
3. The slope of the constant straight line is .....
4. The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is ..... ($-\frac{\sqrt{3}}{6}$, $6\sqrt{3}$, $2\sqrt{3}$, $-2\sqrt{3}$)
5. The mode of the values 3 , 5, 3 , 6, 3 and 8 is = ... (3 , 5 ,6, 8)

2 Complete:

1. The solution set of the equation: $x^2 + 4 = 0$ in R is .....
2. The multiplicative neutral in R is .....
3. $[-1, 5] -]-1, 5[=$ .....
4. $\sqrt[3]{-8} =$ .....
5. If $x < \sqrt{15} < x + 1$, $x \in Z$, then $x =$ .....

3 a) Find the solution set of the inequality:

$x - 3 \geq 4$ in R and represent it on the number line.

b) Simplify: $\sqrt{32} - \sqrt{72} + 6\sqrt{\frac{1}{2}}$

4 a) Find the volume of cylinder with base radius length 7 cm. and its height 10 cm. ($\pi = \frac{22}{7}$)

b) If the straight line $\overleftrightarrow{AB}$ // x–axis where

A (1, 8) , B (–7 , 4 K). Find k.

5 a) Find the mean of the following data:

Sets	8-	12-	16-	20-	24-	Total
Frequency	4	10	16	12	8	50

b) Simplify : $(\sqrt{5} - \sqrt{2})^2 + \sqrt{40}$

Giza 10 Omrania Zone - El-Sadat E.L.S

Answer the following questions:

1 Choose the correct answer:

1) If the volume of cube is 64 cm^3, then a lateral of = ... cm^2. (4, 8, 64, 96)

2) $\sqrt[3]{54} + \sqrt[3]{-2}$ = ... ($\sqrt[3]{52}$, $\sqrt[3]{2}$, $2\sqrt[3]{2}$, $4\sqrt[3]{2}$)

3) The relation y = 3 is represented by a straight line cutting the y– axis at .....

((3, 0) , (–3 , 0) , (0 , 3) , (0 , –3))

4) If the mode of 7, x + 2, 5 is 7, then x = ... (7, 5, 2, 12)

5) $3 \in$ ..... ( ] 3, 5 [,] 0, 3 [, {1,5} ,] 1, 5 [ )

2 Complete each of the following:

1) $]-3, 2[\cap R^-$ = ...

2) If $\sqrt[3]{x} = \sqrt{9}$, then x .....

3) The S.S of the -X > 3 in R is .....

4) The median of 3, 7, 2, 5 and 4 is .....

5) The volume of the sphere whos radius length $\sqrt[3]{21}$ is .....

3 (a) If $x = 2\sqrt{2} - \sqrt{3}$ $y = \frac{5}{2\sqrt{2} - \sqrt{3}}$. Find the value of $(x + y)^2$

(b) Find in S.S of the inequality and represent on number line $7x - 12 \geq 5x - 8$.

4 (a) Simplify = $2\sqrt{18} + \sqrt{50} - \frac{1}{3}\sqrt{162}$

(b) If A =] –1, 3] and B = [0, 5 [.

Find each the following using the number line: $A \cap B$ $A - B$.

5 (a) **Find the slope of the straight line $\overleftrightarrow{AB}$ where**

A (– 6 , 7) , B (0 , 2)

(b) The following table shows the frequency distribution of marks of 100 students in math:

Sets	10-	20-	30-	40-	50-	Total
Frequency	10	20	25	30	15	100

Find the mean of frequency table.

Giza 11 — Omrania Educutional Directorate — El-Neel Language School

1 Complete:

(a) The solution set of inequality $-3 \leq -x < 3$ in R is .....

(b) $[-1, 3] - \{3\}$ = ...

(c) The sphere whose volume is 36π cm^3 its radius length = ... cm

(d) If the lower limit of a set is 6 and the upper limit of the same set is 10, then its centre = ...

(e) The conjugate number of the number $\frac{2}{\sqrt{5} - \sqrt{3}}$ is .....

2 Choose:

a) $\sqrt[3]{54} + \sqrt[3]{2}$ = ... $(3\sqrt[3]{2}, 2\sqrt[3]{2}, 3, 2)$

b) $2, 5 [\cup] \cup \{2, 5\}$ = ... $(\phi, \{2, 5\}, [2, 5], (2, 5))$

c) The real numbers R = ... $(R_+ \text{ UR}, Q \cap Q',]-\infty, \infty[R_+ \cup \{O\})$

d) $(\sqrt{2} + \sqrt{3})^2 - 2\sqrt{6}$ = ... $(R_+ \cup R., Q \cap Q', [\infty, \infty[, R_+ \cup \{0\})$

e) The slope of the straight line y = 1 is .....

(– 1 , 0 , 1 , undefined)

3 a) If $x = \sqrt{3} + \sqrt{2}$, and $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, find the value of $x^2 + 2xy + y^2$

b) Simplify: $\sqrt[3]{16} - \sqrt[3]{54} - \sqrt[3]{128} + \sqrt[3]{\frac{1}{4}}$

4 (a) Find in R , the S.S. of the inequality $4x - 3 \geq -7$, then represent it on the number line.

(b) Find the slope of the straight line $\overleftrightarrow{CD}$ where C (0 , -3) , D (2 , 5)

5 (a) The following is the frequency distribution of the weekly extra wages of 100 workers in a factory.

Extra wages	30-	40-	50-	60-	70-	80-	Total
No. of workers	10	14	20	28	20	8	100

Find the mean of this distribution.

1 Complete:

1. $[-2, 6] \cap [2, 7] = =$ .....
2. The additive inverese of $2 + \sqrt{3}$ is .....
3. If $x < \sqrt{15} < x + 1$, $x \in z$, then $x =$ .....
4. The mean of the value 1, 4, 5, 10 is = ...
5. The slope of the straight line $x = 2$ is .....

2 Choose the correct answer:

1) A sphere of radius 1 cm, then its volume is ..... cm^3.

a) $\frac{\pi}{2}$ b) $\frac{\pi}{6}$ c) $\frac{4\pi}{3}$ d) $\frac{3\pi}{4}$

2) The value of the number $\frac{2}{\sqrt{7} - \sqrt{5}}$ is .....

a) $\sqrt{7} - \sqrt{5}$ b) $\sqrt{7} + \sqrt{5}$ c) $2\sqrt{7}$ d) $\sqrt{5} - \sqrt{7}$

3) The multiplicative inverse of $\sqrt{\frac{2}{10}}$ is .....

a) $2\sqrt{2}$ b) $5\sqrt{2}$ c) $\sqrt{2}$ d) $\sqrt{10}$

4) $[2, 7] - \{2, 7\}$ = ...

a) $\{2, 7\}$ b) ϕ c) $]2, 7]$ d) $]2, 7[$

5) $\sqrt[3]{3} + \sqrt[3]{3}$ = ...

a) 3 b) $2\sqrt[3]{3}$ c) $\sqrt[3]{9}$ d) $\sqrt[3]{6}$

3 Simplify: If the straight line

$y = 2x + 3$ cuts

x – axis at A and y– axis at B

Find the area of ΔABO where O is the origin.

4 Find the S.S in R of the following:

1) $3x - 1 \geq 8$

2) $(2x - 1)^3 = 8$

5 The following table shows the weekly wages in pounds of 50 workers in a factory:

Sets	5-	15-	25-	35-	45-	Total
Frequency	7	10	12	13	8	50

Find the mean of the wage of the worker in pounds.

1 Choose the correct answer from the given ones:

(a) $\frac{1}{2}\sqrt{20}$ = ... $[\sqrt{5}\ ,\ \sqrt{10}\ ,\ 2\sqrt{5}\ ,\ 5\sqrt{2}]$

(b) The cube whose volume is 250 cm^3 , the area of one face of this cube = ... cm^2 $[50\ ,\ 125,\ 20\sqrt[3]{2}\ ,\ 25\sqrt[3]{4}\ ]$

(c) If $]-\infty\ ,\ 2\ ] \cup [\ 2\ ,\ \infty\ [$ = ...

(R , R – { –2 , 2 } , R – [–2 , 2] , R –] –2 , 2 [ )

(d) The next number to $\sqrt{2}\ ,\sqrt{8}\ ,\sqrt{18}\ ,\sqrt{32}$ is .....

$[\sqrt{40}\ ,\sqrt{42}\ ,\sqrt{50}\ ,\sqrt{38}\ ]$

(e) The mean of the values 24 , 25 , 22, 23, 29 = ... [23. 24, 24.4 , 24.6]

2 Complete the following:

(a) If $x \in [-2\ ,\ 3\ ]$ = , then $2x + 1 \in$ ..... [..... , ...]

(b) If the slope of $\overleftrightarrow{AB}$ is equal to the slope of $\overleftrightarrow{BC}$ then A, B and C are .....

(c) The multiplicative inverse of $\sqrt{\frac{3}{6}}$ is .....

(d) If $x = (\sqrt{5} + \sqrt{3})$, $y = (\sqrt{5} - \sqrt{3})$, then $(xy)^3$ = ...

(e) The mode of the values 23, 32, 33, 22 , 24, 32, 23, 24, 33, 22, 32 is .....

3 (a) Put in the simplest form:

$\frac{1}{4}\sqrt{80} - \sqrt{20} - \sqrt{45} + \sqrt{125}$

(b) a- If $x = \sqrt{7} + \sqrt{3}$, $y = \frac{2}{\sqrt{7}+\sqrt{3}}$, prove that x and y are conjugates, then find the values of $x^2 - 2xy + y^2$

4 (a) Find the solution set of the inequality $7x - 12 \geq 5x - 8$, in R , in a form of an interval.

And represent it on the number line.

(b) Graph the relation $x - 2y = 1$, then find the slope of straight line

5 (a) Find the radius of a right circular cylinder whose volume is 40 π , and its height is 10 cm?

(b) The following table shows the frequency distribution of the marks of 100 students in the exam. Find the mean of the student's marks?

Sets	10-	20-	30-	40-	50-	Total
Frequency	10	20	25	30	15	100

Answer the following questions:

1 Choose the correct answer:

1) $[2, 6] - \{2, 8\} =$ ……

a) $\varnothing$ b) $\{2,6\}$ c) $[2, 6]$ d) $]2, 6]$

2) $\sqrt{\ldots\ldots} = \sqrt[3]{64}$ ……

a) 4 b) 16 c) 64 d) – 64

3) The ordered pair (0, -3) dose not satisfy the relation .....

a) $2x + 3y = 12$ b) $2x - 3y = 12$ c) $3x - 4y = 12$ d) $3x + 4y = 12$

4) The S.S of the equation $x^2 - 9 = 0$ ine R is .....

a) $\{3\}$ b) $\{-3\}$ c) $\{\pm 3\}$ d) $\varnothing$

5) The multiplicative inverse of the number $\frac{2}{\sqrt{3}}$ is .....

a) $2\sqrt{3}$ b) $3\sqrt{2}$ c) $-3\sqrt{2}$ d) $\frac{\sqrt{3}}{2}$

2 Complete:

(a) $[3, \infty][\cap] -1, 8] =$ ……

(b) $\sqrt[3]{3} + \sqrt[3]{24} - 3\sqrt[3]{81} =$ .....

(c) $\sqrt{8} \times \sqrt{2} = \sqrt[3]{\ldots\ldots}$

(d) If the lateral area of a cube is 100 cm^2. then its volume = ...

(e) The number $\sqrt{29}$ is included between the two consecutive integers ..... and .....

3 (a) If $x = \sqrt{7} + \sqrt{3}$, $y = \frac{4}{\sqrt{7} + \sqrt{3}}$. Find the value of $x^2 + 2xy + y^2$

(b) Find the S.S of the following inequality $2x + 8 > 3x - 5 > 2x - 8$, in R in a form of an interval , then represent the S.S on number line.

4 (a) If A(2, 1) , B (3, – 1) , C (0, 5) Are A, B , C collinear.

(b) Find the volume of the cylinder whose radius length is 21 cm and height 4 cm, then find its lateral surface area. ($\pi = \frac{22}{7}$)

5 From the following frequency distribution draw the histogram and from the draw find the mode.

Sets	10-	20-	30-	40-	50-	60-	Total
Frequency	15	15	20	25	15	10	100

Draw a bar chart for the frequency table data.

Gharbia 15 — Samannoud Educational Directorate — Samannoud Experimental Language School

Answer the following questions:

1 Choose the correct answer from the given ones:

1) The irrational number ..... lies between 2 and 3.

a) 4 b) $2\frac{1}{2}$ c) $\sqrt{5}$ d) $\sqrt{10}$

2) $[3, 7] - \{3, 7\}$ = ...

a) $\{0\}$ b) $\varnothing$ c) $[3, 7]$ d) $]3, 7[$

3) The slope of straight line parallel to y– axis is .....

4) $\sqrt{12} - \sqrt{3}$ = ...

a) $\sqrt{9}$ b) $\sqrt{3}$ c) 3 d) 4

5) The mode of the values: 4, 5 , 6, 4 and 7 is .....

a) 4 b) 5 c) 6 d) 7

2 Complete each of the following:

a) If : $-x > \text{zero}$, then S.S in R is .....

b) The radius length of a sphere whose volume is $\frac{9}{2}\pi$ cm^3 = ... cm

c) The multiplicative inverse of the number $\sqrt{5} - 2$ is .....

d) The arithmetic mean of the values: 4 , 6, 8 and 10 is .....

e) The median of the values 5, 10, 8, 12 and 11 is .....

3 (a) Find the slope of $\overleftrightarrow{AB}$ where A (7, 2) , B (–2, 0)

(b) If A = $\sqrt{5} - \sqrt{3}$, B = $\frac{2}{A}$. Find the value of the expression: $A^2 - 2AB + B^2$

4 (a) Find in R the S.S of each of the following

1) $3x + 5 > 2$ 2) $x^2 + 3 = 19$

(b) Calculate the radius length of the right cylinder whose volume is 2156 cm^3 and its height is 14 cm. ($\pi = \frac{22}{7}$)

5 (a) If x = [–3 , 2 [and y = [–1 , 4] , find in the form of interval using the number line each of the following:

1) $X \cap Y$ 2) $X - Y$

(b) The following table shows the frequency distribution of marks of 60 students in an exam .

Sets	5-	10-	15-	20-	25-	30-	35-
Frequency	2	5	15	20	13	5	1

Form the ascending cumulative frequency table and represent it graphically.

1 Complete:

a) $\sqrt[3]{64} - \sqrt{16}$ = ...

b) The ordered pair (3 , ...) satisfies the relation x - 3y = 9

c) [-1 , 5] $\cap$ [3 , 7] = ...

d) The median of 23 , 42 , 17 , 30 and 20 is .....

e) If the lower limit of a set is 4 and its upper limit is 8 then its centre is .....

2 Choose the correct answer:

a) The conjugate of the number $\sqrt{5} - \sqrt{2}$ is .....

($\sqrt{5} + \sqrt{2}$, $\sqrt{5} - \sqrt{2}$, $2\sqrt{5}$, $\sqrt{2} - \sqrt{5}$)

b) The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is ..... ($6\sqrt{3}$, $2\sqrt{3}$, $\sqrt{6}$, $\sqrt{3}$)

c) The volume of the cube of side length 3 cm is .....

($3\ cm^3$, $27\ cm^3$, 27 cm , 9 cm)

d) The mean of 4 , 5 , 6 , 8 , 2 is ..... (4 , 5 , 6 , 7)

e) The S.S. of the equation $x^3 = 64$ is ..... where $X \in R$ (4 , 8 , $\{4\}$, $\{8\}$)

3 a) If $a = \sqrt{3} + \sqrt{2}$, $b = \frac{1}{\sqrt{3} + \sqrt{2}}$ find the value of a + b **in the simplest form.**

b) If A (-5 , 6) , B (1 , 3) , C (3 , y) are collinear, find the value of y.

4 a) Find in R. The S.S. of the equation $\sqrt{2}x - 1 = 5$

b) Find the volume of right cylinder whose height is 6 cm and length of its base radius is 1.4 cm

($\pi = \frac{22}{7}$)

5 a) Find S.S. in R of the inequality $-1 < 2x + 3 \leq 7$ and represent it on the number line.

b)

Sets	2-	6-	10-	14-	18-	22-	26-
Frequency	3	5	8	10	7	5	2

Using ascending cumulative frequency table to get the median.

Damietta 17 Experimental Language School

Answer the following questions:

1 Choose the correct answer:

a) The relation $10 + y = 5x$ is represented by a straight line cutting x - axis in at .....

((2 , 0) , (-2 , 0) , (0 , 2) , (0 , -2))

b) The irrational number between 3 and 4 is ..... $(3.5 , \frac{1}{8} , \sqrt{13} , \sqrt{20})$

c) The mean of marks of 5 pupils is 30 then the total of their marks is .....

(6 , 25 , 35 , 150)

d) The S.S. $-x > 3$ in R is ..... ({3} , |3 , | , |- , 3| , |- , -3|)

e) The S.S. $\sqrt{2}\ X = 2$ in R is ..... $(\sqrt{2} , 2\sqrt{2} , 2 , \varnothing)$

2 Complete to form a correct statement:

a) $Q \cup Q' =$ .....

b) If $\sqrt[3]{X} = -\sqrt{4}$ then X = ...

c) Complete using $\in$ or $\notin$ 103×10^{-5} ..... R_+

d) The median 23 , 13 , 15 , 30 , 11 is .....

e) If the lower limit of set is 8 and the upper limit of the same set is 14 then the center is .....

3 a) Prove that $2\sqrt{32} - \sqrt{50} - \frac{1}{3}\sqrt{162} = 0$

b) If the slope of the straight line passing by (-1 , 3) , (x , 2) is undefined find x.

4 a) Find the S.S and represent on the number line $15 \leq 5X < 30$ where $X \in R$.

b) If $A = \sqrt{3} + \sqrt{2}$, $B = \frac{1}{\sqrt{3} + \sqrt{2}}$ find value of $A^2 B^2$.

5 a) If X = [0 , 3] , Y =] 0 , 7] find the following using number line.

a) $X \cap Y$ b) $X \cup Y$

b) The following table shows frequency distribution for the scores of 40 students in an exam.

Set	30-	40-	50-	60-	70-	80-	Total
Frequency	3	4	12	8	7	5	40

Graph the frequency histogram, then find the mode.

Answer the following questions:

1 Choose the correct answer:

1) The irrational number which lies between 2 and 3 is .....

a) $\sqrt{10}$ b) $\sqrt{7}$ c) 2.5 d) $\sqrt{3}$

2) -5 .....]- , -6[

a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

3) $1 + \sqrt{2}$ ..... $\sqrt{3}$

a) < b) > c) = d) $\geq$

4) If the ordered pair (-1 , 3) satisfies the relation 3X - y = C Then C = ...

5) The surface area of a square whose side length is $\sqrt{3}$ = ... cm^2.

a) $4\sqrt{3}$ b) 9 c) 3 d) 6

2 Complete:

1) The intersection point of the ascending and descending cumulative frequency curves determines ..... on the sets axis.

2) $\sqrt[3]{a^3}$ = ...

3) The lower limit of a set is 4 and its center is 9 , then its upper limit is = ...

4) If the ages of 5 students are 13 , 15 , 16 , 14 and 17 years old, then the mean of their ages = ... years.

5)]3 , 9[$\cup$ { 9 } = ...

3 a) If $x = \frac{4}{\sqrt{7} - \sqrt{3}}$, $y = \sqrt{7} - \sqrt{3}$

Prove that: x and y are conjugates, then find the values of:

a) (x + y) b) x y

b) If the slope of the straight line $\overleftrightarrow{AB}$ is 7 where A (1 , 2) , B (3 , x) find x.

4 a) If x = [-2 , 3] , y = [1 , 5[

Find the following using the number line

a) $x \cup y$ b) $x \cap y$

b) Find the solution set for the inequality $3x - 1 < 5$, in R in the form of interval, then graph the solution on the number line.

5 a) The volume of a sphere is 562.5 π cm^3. Find its surface area.

b) The following table shows frequency distribution of the daily wages of some workers.

Sets	5-	10-	15-	20-	25-	30-	Total
Frequency	10	14	24	30	12	10	100

Required: Graph the descending cumulative frequency curve.

Port Said 19 The official Experimental school for L.g

Answer the following questions:

1 Choose the correct answer:

1) The median of the numbers 3, 6, 2, 4 , 9 is .....
(a) 2 b) 6 c) 4 d) 9

2) The mode of the values 3, 5, 3, 6 , 3 is .....
(a) 3 b) 5 c) 6 d) 8

3) Which of the the following ordered pairs satisfies the relation 2 x +y = 5
(a) (-1,3) b) (1,3) c) (3,1) d) (2,2)

4) The additive inverse of $(7 - \sqrt{2})$ is .....
(a) $(7 + \sqrt{2})$ b) $(-7 - \sqrt{2})$ c) $(\sqrt{2} - 7)$ d) $\sqrt{5}$

5) The S.S of the equation: $x^2 + 16 = 0$ in R is .....
(a) ± 4 b) -4 c) 4 d) $\varnothing$

2 Complete:

1) $R_+ \cap [-1, 3]$ .....

2) $\sqrt[3]{64} - \sqrt{16}$ = ...

3) The S.S of the inequality - x > 3 in R is .....

4) $[1, 7] - \{1, 7\}$ = ...

5) If the volume of a cube is 27 cm^3, then the length of its side is .....

3 (a) If $x = \sqrt{5} + -\sqrt{2}$, $y = \sqrt{2} - \sqrt{2}$, then find the value of: $\frac{x + y}{xy - 1}$

(b) If the slope of the straight line $\overleftrightarrow{AB}$ in $\frac{5}{3}$ where A (3,5), B (-3,4) find the value of y

Ismailia 20 Directorate of Education - Elmanar Language School

Answer the following questions:

1 Complete:

a) If $\sqrt[3]{x} = 5$ then x = ...

b) (k,2) satisfies the relation 6 x + 5 y = 13 then k = ...

c) The conjugate of $5 - \sqrt{7}$ is .....

d) The S.S of $x^2 + 25 = 0$ in R is .....

e) If the lower limit of a set is 4 and the upper limit of the same set is 10 then the centre of the set = ...

❷ Choose the correct answer:

a) ..... $Q^{/}$ $(3 , \sqrt{3} , \sqrt{16} , \sqrt[3]{8})$

b) $\{x:x \in R, x > 0\}$ (R^+, R^-, R^*, R)

c) The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is ..... $(\frac{-\sqrt{3}}{6} , 6\sqrt{3} , 2\sqrt{3} , -2\sqrt{3})$

d) If the mode of the values 3, 5, x + 1, 5, 3, 1 is 5 then x = ...

(5 , 4 , 3 , 6)

e) If the edge length of a cube is 4 cm then the volume of a cube = ... cm^3

(4 , 16 , 64 , 12)

❸ (a) Find in R the S.S of:

$4 < 3x + 4 \leq 7$ and represent it on the number line.

(b) If:

$A = \sqrt{3} + \sqrt{2}$, $B = \frac{1}{\sqrt{3} + \sqrt{2}}$ Find the value of $A^2 + B^2$

❹ (a) Find the slope of the straight line that passes through the two ordered pairs (2,0), (0,3)

(b) If:

$X =]-\infty , 4]$, $Y =]-2 , 7]$

Find each of the following using the number line:

1) $X \cap Y$ 2) $X \cup Y$ 3) $X - Y$

❺ (a) Find the volume of a right circular cylinder its radius length 7 cm and its height is 10 cm. ($\pi = \frac{22}{7}$)

(b) Find the mode of the following table:

Sets	2 –	6–	10–	14–	18 –	22 –
Frequency	3	5	6	10	7	2

Answer the following questions:

1 Choose the correct answer:

1) $Q \cap Q'$ .....
(a) {0} b) ∅ c) R d) Q

2) The mean of the value 7, 15, 19, 14 and 15 .....
(a) 14 b) 15 c) 16 d) 17

3) If the volume of a sphere $\frac{32}{3}\pi$ cm^3 , then its radius length = ... cm
(a) 14 b) 2 c) 4 d) 16

4) $[-1, 3] - \{3\}$ = ...
(a) $]-1, 3[$ b) $[-1, 3]$ c) $]-1, 3]$ d) $[-1, 3[$

5) The S.S of $x^2 = 16 = 0$, $x \in Q$ is .....
(a) 4 b) ± 4 c) 16 d) 8

2 Complete:

1) The mode of the numbers 6, 10, 8, 4, 6, 7, 6 equals .....

2) The additive inverse for $(1-\sqrt{2})$ is .....

3) The slope of the straight line y = 2 is .....

4) $]-\infty, 2] \cup [-3, \infty[$ = ...

5) The solution set in R of the inequality $2x + 3 > 13$ is .....

3 (a) Put in the simplest form:

$$\sqrt{18} + 3\sqrt[3]{\frac{1}{3}} - \sqrt{8} - \sqrt[3]{9}$$

(b) Find the solution set in R $(2x + 3)^3 + 4 = 12$

4 (a) A right circular cylinder of height 10 cm. and its volume is 1540 cm^3. Find its total area.

(b) Find in R the S.S. of the inequality $5x + 7 \geq 2x - 11$

5 (a) Find the value of k where (k,k) satisfies the relation $2x + y = 12$

(b) Find the mean of the following table:

Sets	5 –	15–	25–	35–	45 –	Total
Frequency	7	9	12	8	4	40

1 Choose the correct answer:

1) $4 \in$ .....
(a) $]-3, \infty[$ b) $]-\infty, 3[$ c) $(3, 5)$ d) $]4, \infty[$

2) The slope of the stright line $x = 1$ in .....
(a) -1 b) 0 c) 1 d) undefined

3) The mean of the numbers: 7, 8, 3 and 6 is .....
(a) 5 b) 6.5 c) 6 d) 8

4) If the volume of a sphere = 36π cm^3 then the radius is ..... cm.
(a) 4 b) 27 c) -3 d) 3

5) The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is .....
(a) $\sqrt{3}$ b) $\sqrt{6}$ c) $3\sqrt{2}$ d) $-\frac{3}{\sqrt{2}}$

2 Complete:

1) $\sqrt[3]{-64} + \sqrt{16}$ =.....

2) The mode of the values: 5, 3, 8, 5 and 9 is .....

3) The S.S in R of the equation: $x^2 - 5 = 0$ is .....

4) The conjugate of the number $\frac{2}{\sqrt{5} - \sqrt{3}}$ in the simplest form is .....

5) The median of the values: 3, 9, 2, 7, 6 and 11 is .....

3 (a) If $X =]-1, 4]$, $Y = [2, \infty[$ Find: 1) $X \cap Y$ 2) $X \cup Y$

(b) Find the solution set of the following inequality in R $-3 \leq 2x - 1 < 5$ then represent the S.S. on the number line.

4 (a) Put in the simplest form:

$$\sqrt{32} - \sqrt{72} + 6\sqrt{\frac{1}{2}}$$

(b) Find the volume of the right circular cylinder of radius length is 7 cm. and its height is 10 cm. $(\pi = \frac{22}{7})$

5 (a) If A (-1,2), B (3,0), C (k,-1) are on the same straight line find the value of k

(b) The following table shows the frequency distribution of weight of 40 children in k.g:

Sets	5 –	15–	25–	35–	45 –	Total
Frequency	7	9	12	8	4	40

Calculate the mean of weight of children

Exam (1) algebra

Complete the following:

1 The slope of the straight line parallel to X-axis is .....

2 If the mode of the values : 18 , 11 , 4 , 2 X is 18 , then X = ...

3 If (k , 2) represents the relation : $X + 2y = 5$, then k = ...

4 If the order of the median of some values is the seventh , then the number of these values is .....

5 The median of : $a + 2$, a , $a - 2$, $a - 1$, $a + 1$ is .....

Choose the correct answer:

1 $[3 , 5] -]3 , 5[$ = ...

(a) $\varnothing$ (b) $[3 , 5]$ (c) $]3 , 5[$ (d) $\{3 , 5\}$

2 If the point (a , 1) satisfies the relation : $X + y = 5$, then a = ...

(a) -4 (b) 1 (c) 4 (d) 5

3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 2 (b) 4 (c) 6 (d) 8

4 If the radius length of a sphere is 6 cm. , then its volume is ..... cm^3.

(a) 6π (b) 36π (c) 72π (d) 288π

5 $\sqrt{100 - 36} = 10 -$ .....

(a) -6 (b) 2 (c) 4 (d) 6

6 The intersection point of the ascending and descending cumulative curves determines the ..... on the sets axis.

(a) order of the median (b) median

(c) mean (d) mode

Question 3:

[a] **Find the S.S. of the inequality :** $-2 \leq 3X + 7 < 10$ in $\mathbb{R}$, then represent the interval of solution on the number line.

[b] Find the height of a right circular cylinder whose height is equal to its base radius length and its volume is 72π cm^3.

Question 4:

[a] The area of a sphere is 616 cm^2. Find its diameter length $\left(\pi = \frac{22}{7}\right)$

[b] **Graph the relation :** $y = 2x$

[c] Find the slope of $\overleftrightarrow{AB}$ where A $(-1, 5)$, B $(2, 6)$

Question 5:

[a] If $A = [-2, 3]$, $B =]0, 5[$, **using the number line find :**

1 $A \cup B$ 2 $A \cap B$ 3 $A - B$

[b] **From the following frequency distribution :**

Sets	10 –	20 –	30 –	40 –	50 –	Total
Frequency	7	10	8	6	9	40

Find the mean.

Exam (2) algebra:

Complete the following:

1 The multiplicative inverse of the number $\sqrt{10}-3$ is .....

2 $[3,5]-]3,5[=$ .....

3 The median of the numbers : 41 , 19 , 15 , 30 , 20 is .....

4 $\sqrt{18}-\sqrt{2}=$ .....

5 If the slope of the straight line passing through (2 , k) , (3 , – 1) is 2 , then k = ...

Choose the correct answer:

1 The simplest form of $\left(\sqrt{3}-\sqrt{2}\right)\left(\sqrt{3}+\sqrt{2}\right)$ is .....

(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $\sqrt[2]{3}$

2 The volume of a cube is 64 cm^3 , then its edge length is ..... cm.

(a) 4 (b) 8 (c) 16 (d) 64

3 The mean of the values : 34 , 23 , 25 , 40 , 22 , 12 is .....

(a) 22 (b) 23 (c) 24 (d) 26

4 If the point (k , 1) satisfies the relation : $x+y=5$, then k = ...

(a) 1 (b) – 4 (c) 4 (d) 5

5 $\left(2\sqrt[3]{2}\right)^3=$ .....

(a) 4 (b) 8 (c) 16 (d) 40

6 If the mode of the values : 4 , 11 , 8 , 2 x is 4 , then $x=$ .....

(a) 2 (b) 4 (c) 6 (d) 8

Question 3:

[a] Find in the simplest form : $\sqrt{18}+\sqrt{32}-3\sqrt{2}-\frac{1}{2}\sqrt{8}$

[b] If $x=\sqrt{5}-\sqrt{2}$, $y=\frac{3}{\sqrt{5}-\sqrt{2}}$, **prove that :** x and y are two conjugate numbers.

Question 4:

[a] Represent graphically the linear relation : $y = 2 - x$

[b] Find the solution set of the inequality :

$-2 < 3x + 7 \leq 10$ in $\mathbb{R}$, then represent the S.S. on the number line.

Question 5:

[a] A right circular cylinder of radius length 4 cm. and its height is 9 cm. Find its volume in terms of π

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

Exam (3) algebra:

Complete the following:

1 $\sqrt[3]{64} = \sqrt{\ldots\ldots}$

2 In the relation : $y = 3x + 4$, if $y = 1$, then $x = \ldots\ldots$

3 If the mode of the values : 12 , 7 , $x + 1$, 7 , 12 is 7 , then $x = \ldots\ldots$

4 $[-2 , 5[\cap \mathbb{R}_+ = \ldots\ldots$

5 The median of the set of values : 34 , 23 , 25 , 40 , 22 , 4 is $\ldots\ldots$

Choose the correct answer:

1 The S.S. of the equation : $x(x^2 + 4) = 0$ in $\mathbb{R}$ is $\ldots\ldots$

(a) $\{4\}$ (b) $\{0\}$ (c) $\{-4 , 0\}$ (d) $\{4 , -4\}$

2 The slope of the straight line which is perpendicular to x-axis is $\ldots\ldots$

(a) 1 (b) zero (c) -1 (d) undefined.

3 If the arithmetic mean of the numbers : 5 , 4 , $x - 3$, 6 , 4 is 4 , then $x = \ldots\ldots$

(a) 5 (b) 4 (c) 6 (d) 3

4 If the mode of the numbers : 5 , 2 , 4 , $x - 2$ is 5 , then $x = \ldots\ldots$

(a) 4 (b) 6 (c) 7 (d) 5

5 If $-2x < 6$, then x $\ldots\ldots$

(a) < 6 (b) > -3 (c) > 6 (d) > -6

6 $\mathbb{Z} \cap \mathbb{N} = \ldots\ldots$

(a) $\{0\}$ (b) $\mathbb{Z}_-$ (c) $\mathbb{N}$ (d) $\mathbb{Q}$

Question 3:

[a] Represent the relation : $2x + y = 4$, then find the slope of the straight line representing this relation.

[b] If $x = \dfrac{1}{\sqrt{7} + \sqrt{6}}$, $y = \sqrt{7} + \sqrt{6}$, **prove that :** x and y are two conjugate numbers , **then find :** $(x + y)^2$ in the simplest form.

Question 4:

[a] The radius length of the base of a right circular cylinder is 4 cm. and its height is 9 cm. Find the volume in terms of π

[b] If A $(2, -1)$, B $(10, 3)$ and C $(2, 3)$, find the slope of each of $\overleftrightarrow{AB}$ and $\overleftrightarrow{BC}$

Question 5:

[a] **Find the S.S. in $\mathbb{R}$ for the inequality :**

$\sqrt[3]{-8} \leq x + 1 \leq \sqrt{9}$, then represent it on the number line.

[b] **From the following frequency distribution :**

The set	10 –	20 –	30 –	40 –	50 –	Total
Frequency	10	20	25	k	15	100

Find : 1 The value of k 2 The arithmetic mean.

El-sharkia Governorate
10th of Ramadan zone

2nd preparatory
First term Exam (2019 - 2020)

(Algebra)
Time : 2 hours

Answer the following question :

1) Choose the correct answer :

1) $\sqrt{25} - \sqrt[3]{-125}$ = ...
a) 0 b) 10 c) 5 d) ± 5

2) The slop of the straight line parallel to x axis = ...
a) positive b) negative c) zero d) undefined

3) If the mode of the set of values 4 , 11 , 8 , $2x$ is 4 , then x = ...
a) 2 b) 4 c) 6 d) 8

4) If the point (a, 1)satisfies the relation $x + y = 5$, then a = ...
a) 1 b) -4 c) 4 d) 5

5) If the volume of a cube is 27 cm^3 , then the edge length is .....
a) 3cm b) 9 cm^2 c) 9 cm d) 54 cm^2

6) If the lower limit of a set is 4and the upper limit is 8 ,
then its center is .....
a) 4 b) 6 c) 4 d) 8

2) Complete :

1) The multiplicative inverse for ($\sqrt{3} + \sqrt{2}$) is.....
2) The slop of the straight line which passes through
A(2 , -5), B(3 , -2) is .....
3) $[1 , 5] - \{1 , 5\}$ = ...
4) If $x^3 + 9 = 1$, where $x \in R$, then x = ...
5) The median of the values : 2 , 3 , 5 , 7 , 9 is .....

3) (a) Simplify : $\sqrt{72} + 3\sqrt{18} - 2\sqrt{\frac{1}{2}}$

(b) Find the solution set of the inequality :
$-2 < 3x + 7 \leq 10$ in R, then represent the interval of S.S. on the number line .

4) (a) If $x = [-2 , 4]$, $y =]1 , 6]$
Find by using number line : $x \cap y$, $x \cup y$

(b) If $X = 3 + \sqrt{5}$, $Y = \frac{4}{3 + \sqrt{5}}$
prove that: X , Y are conjugate numbers and find the value of : $(X - Y)^2$

5) (a)Graph the relation $Y = X + 2$
and if (-4 , a) satisfies the relation ,
find the value of a

(b) Find the arithmetic mean of the following distribution:

Sets	5–	15–	25–	35–	45–	Total
Frequency	4	5	6	3	2	20

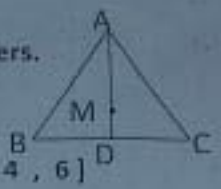
Time : 2 hours	Exam of geometry for the 2nd prep grade the first term 2018/2019	Fayoum governorate Directorate of Education

school :

Calculator is allowed

Answer the following questions.

The first question: choose the correct answer from the given answers.



(1) In the opposite figure if MD =2cm . M is the concurrence point of themedians of the triangle ABC . then AD=.....cm [1 , 3 , 4 , 6]

(2) If the measure of an angle in the isosceles triangle=60^0 Then the triangle is ..... [Right-angled , obtuse-angled , equilateral , scalene]

(3) In △ ABC if m(∠B) > m(∠c) then AC .....AB [> , ≤ , ≥ , <]

(4))The lengths which can be lengths of sides of a triangle are

[(4, 6 , 10) , (2 , 3 , 6) , (4 , 8 , 6) , (1 , 5 , 8)]

(5)In The opposite figure AC =BC , m∠(ACD)=140^0

Then m∠(A) =.....^{0} [40 , 60 , 70 , 140]

(6) The sum of measures of the interior angles of a triangle = ...^{0}

[80 , 90 , 180 , 360]

The second question: complete the following

(1)The medians of a triangle are .....

(2) The straight line drawn passing through the vertex angle of an isosceles triangle perpendicular to the base bisects each of .....and .....

(3 If the measure of an angle in the Right-angled triangle=45^0 Then the triangle is.....

(4) The lengths of two sides in an isosceles triangle are 8cm , 4cm then the length of the third side =.....

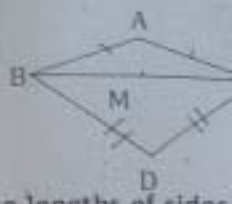
(5) In a triangle if two sides have unequal lengths then the longer is opposite to .....

Rest of questions in the second page

follow: Exam of geometry for the 2nd preparatory grade

The third question:

(a) In the opposite figure:AB=AC , DB =DC, M is The midpoint of $\overline{BC}$ prove that: A,M and D are in the same straight line



(B) in the triangle ABC $m(\angle A)= 40^\circ$, $m(\angle B)= 80^\circ$ arrange the lengths of sides the triangle ABC descendingly

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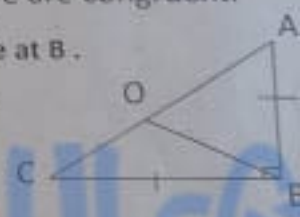
The forth question:

(a)prove that : the base angles in the isosceles triangle are congruent.

(b) In the opposite figure: ABC is a right-angled triangle at B .

AB=6cm , BC=8cm , AC=10cm O is the midpoint of $\overline{AC}$

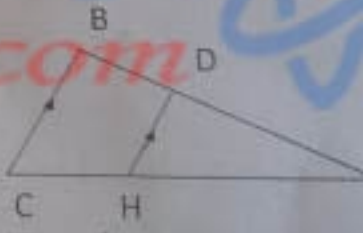
find with steps the perimeter of the triangle ABO



The fifth question

(a) In the opposite figure $\overline{AC} > \overline{BC}$, $\overline{DH} // \overline{BC}$

Prove that : AH>DH



(b) In the opposite figure $\overline{MN} // \overline{AC}$

AM=MD ,CN=ND $m(\angle B)=90^\circ$ $m(\angle ACB)=30^\circ$

prove that :AB =MN

the questions are finished with best wishes

Sharkia Edu. Directorate | (algebra) | Second prep
Fakous official lang. school | (First term) 2017 – 2018 | Time: 2 hour

1)Complete :

a) $\sqrt{18} + \sqrt{2} = \ldots 3\sqrt{2} \ldots$

b) $]1,3] \cup [2,5] =]1,5[$

c) The S.S.of the equation $x^2 - 5 = 0$ in $\mathbb{R}$ is $\ldots \pm\sqrt{5} \ldots$

d) The volume of a cylinder whose base area 25 cm^2 and its height 10 cm = $\ldots 250 \ldots cm^3$

e) The multiplicative inverse of $\sqrt{3}+\sqrt{2}$ is $\ldots \sqrt{3}-\sqrt{2} \ldots$ (in the simplest form)

f) $[2,5] - (2,5) = \ldots \{2,5\} \ldots$

2)Choose the correct answer:

a) $(2\sqrt[3]{2})^3 = \ldots$ (4 ,8 ,16 ,40)

b) The volume of a cube is 27 cm^3 then the area of one face is ..... cm^2 (3 , 9 ,36 , 54)

c) The mode of the set of values ,4 , 11 , 8 , 2x is 4 then x = ... (2 , 4 , 6 , 8)

d) If the lowest limit of a set is 4 and the upper limit is 8 then its center is .....(2 , 4 , 6 , 8)

e) if $X=(\sqrt{7}+\sqrt{2})$, $Y=(\sqrt{7}-\sqrt{2})$,then x - y = $\ldots 2\sqrt{2} \ldots$ $(2\sqrt{7}, 7\sqrt{2}, \sqrt{41}, 2\sqrt{2})$

3)a) Reduce: $2\sqrt{5} + 6\sqrt{\frac{1}{3}} - \sqrt{27} - 5\sqrt{\frac{1}{5}}$

b) if $X=\frac{4}{3+\sqrt{5}}$, $Y = 3+\sqrt{5}$ prove that x,y are conjugate numbers then find $x^2 + y^2$

4)a) Find the S.S of $-2 \leq 3x + 7 < 10$ in $\mathbb{R}$ then represent the interval of solution on the number line

b) The volume of sphere is 36 π cm^3 calculate its radius length and its surface area.

5) a) The following table shows a frequency distribution

Sets	10 -	20-	30-	40-	50-	60-	total
frequency	10	K	22	25	20	8	100

Find : 1) the value of K 15

2) the median using the ascending or descending cumulative curve

b) calculate the mean of the following values:

12, 13 , 17 ,18 , 15 (15)